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Gazdaságtudományi Kar
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Ország Gáborné

A hazai középiskolások pénzügyi kultúrájának vizsgálata

Doktori értekezés tézisei

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A study on the financial literacy of Hungarian secondary school students

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1. Motivation

In our everyday life we often make decisions which require financial knowledge. Recently, the market of financial products and services has become so complex, that one constantly has to renew their skills and qualifications. In the past few decades, the financial market has become more and more available to ordinary people all over the world. New products and services of investment, savings and loans have appeared, however, these products are usually difficult and incomprehensible, especially for investors with too little experience. (AKIN et al. 2012, LUSARDI 2012).

Managing the finances and financial decision-making is tough, especially for young or handicapped people. Financial culture gained an important role after the global economic and financial crisis (WILLIAMS–SATCHELL 2011), since former wrong financial decisions still have their impacts today. Some researchers state (e.g. REMUND 2010) that a more extensive financial culture could have made the consequences of the crisis easier to cope with.

Financial knowledge is important for people of all ages, since in our everyday life, we have to make financial decisions (e.g. shopping), and as a member of a family or a household, financial decisions have their effects on our life. A large part of the Hungarian households has no savings, but has a large amount of loan debt, and the repayment gives a high proportion of the net income of the households. Many researchers establish the improper financial culture as the cause of this problem (HORVÁTHNÉ –SZÉLES 2014).

Previous wrong decisions in their finances have high costs in their future lives for individuals. Young people often find themselves in the situation of having an enormous amount of student loan debt or credit-card debt, which capture them in a "financial net", thus preventing their increase of their property. Young adults are under the influences of different effects, which have their impacts on their future financial decisions. The costs of getting a qualification are high, however, after graduation and getting a job these young people might not be able to clear the costs. Today, young people in the US have high amounts of debt, which prevents young employees from resorting fair taxation or bonuses offered by the employers, or make up some savings from their incomes. (LUSARDI et al. 2010). Not only young people or students, but the entire population is affected by these problems.

In the US, before the 1980s, the majority of the employees were members of the pension system supported by the state and the employers. Changes in the pension system made self-investments of the employees necessary. The creation of private accounts and pension programs provided higher adaptability and mobility for workers, and also put higher responsibility on

them. The financial security of an individual depends on their current financial decisions and behaviour. The advantage of self-investment is adaptability, however, many researchers draw attention to the risks of the consequences of wrong financial decisions. This new financial era "forces" the people to improve their financial knowledge (LUSARDI–MITCHELL 2011). In Europe, the ageing of societies makes self-investment more and more important. But this requires that people in their active years should also save and not spend all their money (ALESSIE et al. 2011, BÉRES–HUZDIK 2012).

Offices of the American administration had observed tip-offs before the 2008 financial crisis, e.g. the permanently decreasing savings rate. This made them to take steps of helping people understand financial situations. In 2006 the US joined the first national strategy created to improve financial culture. However, this national strategy was introduced without a unified determination or a consistent measurement of financial culture (REMUND 2010).

The majority of the adult population never learnt finances and economics, but even if they did, many current financial products did not exist at that time. If the financial knowledge of people is short, they will not be able to choose correctly from the wide variety of financial products and services. The greatest difficulty which prevents claiming the financial products for saving is the lack of knowledge and trust. To change this, improving the attitude connected to money is necessary (HORVÁTHNÉ–SZÉLES 2014). But is financial knowledge really the way to help people change their financial needs, financial lives and the social impacts? This is a controversial issue (REMUND 2010). I think, the enhancement of financial culture has undisputable advantages for people. In Hungarian research too little attention is paid on this topic. With this study I would like to contribute to the investigations of financial literacy.

2. Aim and hypotheses

I investigate the financial culture of young people. First I deal with the importance of financial knowledge, then I describe the notion of financial culture. I show the models of measure, the target audience and the main results, then I present some results of surveys carried out among Hungarian secondary school students. Based on these results, I would like to prove the following hypotheses:

While analysing the tests concerning financial knowledge, it would be worth to investigate if those students, who perform better in these tests, will score better in each question than the students with lower results, or we experience differently. This means that a student with higher score of these tests will probably have more correct answers.

Hypothesis H1: Students with the highest aggregate scores of the financial knowledge tests perform better in every question than students with the worst results.

Students with different result have specific characteristics. International survey (OECD survey 2011, S&P survey 2015) show differences among groups based on demographic factors (sex, school, age).

Hypothesis H2: We can show significant difference between students with the best and worst results.

Secondary school students have to make financial decision every day, e.g. how to spend their allowance. What they experience at home has a great influence on their financial decisions, but students can enhance their financial knowledge also at school, which means that they can improve their financial culture through the years by gaining experience and qualification.

Hypothesis H3: Students with less financial experience have lower results in the tests.

In my study I compare the results of Hungarian research to the results of international investigations. These investigations show that computational tasks (e.g. calculating percentages, compound interest) or comparisons of different financial offers cause great difficulties for students and adults alike. From the appropriate scientific literature, we can verify also that men have a higher financial knowledge than women. Though we can find differences in the results concerning adult population, it is less likely among young people.

Hypothesis H4: The results of the surveys carried out among Hungarian secondary school students and the results of international surveys showed concordance.

3. The structure of the dissertation and the applied methods

3.1. Structure

Between the second and the fourth chapter I review the scientific background. In the second chapter I investigate the notion of financial literacy. In the third chapter I describe the target audiences which have the greatest significance in the investigation of financial knowledge, and I show the most important results. In the fourth chapter I discuss fields of improvement and the work of different Hungarian and international organizations. The fifth chapter deals with the results of empirical research. I joined the investigation of Hungarian students in 2014, beyond the comparison of the results in time, I would like to make some conclusions based on the hypotheses mentioned above about the financial knowledge of young people.

In the second chapter I describe the notion of financial knowledge and its dimensions and measure. The scientific revision of the notion of financial literacy can be divided into two parts: theoretical framing and the components of financial knowledge. The general notions present the contents of financial literacy. The practical definitions formulate measurable criteria and assumptions.

The first notion of financial literacy was introduced in 1958 in the US. The notion of financial literacy according to an OECD-survey: "Financial literacy is a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing." (ATKINSON–MESSY [2012] p. 14). This description reveals many factors of financial knowledge, and shows that financial literacy is more than financial learning, it also includes some abilities (SUGANYA et al. 2013). Huston (2010) investigated 71 monographs created by 50 different authors or organizations. The majority of these monographs were written in the US between 1996 and 2008. More than 50 of these monographs could not give a concept of financial literacy. In the remaining monographs we can find definition giving 8 different meanings. According to the most wide-spread notion, financial literacy consists of knowledge and capabilities (KNOLL–HOUTS 2012). Motivation for action rarely occurs in the definitions of the notion (REMUND 2010). If we think of financial literacy as a notion or a concept, then we can find several connections and correspondences in the definitions given by different researchers.

Several papers (LUSARDI 2012, LUSARDI–WALLACE 2013, STEEN 2001), show that computational skills are connected to financial decision-making. The lack of computational skills is a wide-spread problem, especially in the case of some special demographic groups:

women, old people and people with low qualification. These skills are useful not only on the labour market, but also in the financial decision-making of an individual throughout their lives. Italian researchers suppose that financial behaviour is influenced by a genetic factor. They state that there exist some non-observable factors that may explain the level of financial knowledge of young people: e.g. attitude and psychology. Attitude is described as a factor of competence which helps the individual deal with a financial problem (BONGINI et al. 2012).

While investigating awareness, we gain information on financial literacy, and by revealing the factors we make conclusions and suggest possibilities of development. The three questions of Lusardi and Mitchell (2008) corresponding to financial literacy (compound interest, inflation, risk sharing) are extensively used in survey carried out in the US and also in international surveys.

The definition of the Hungarian National Bank also fits in these concepts. It defines financial literacy as "a level of financial knowledge and skills, which helps individuals recognize and understand fundamental financial information necessary to make careful and sound decisions, and assess the possible future consequences of their decisions." (MNB-PSZÁF [2008] p. 1.). I would like to emphasize that this definition mentions the outcome of the decision, and most of the dimensions are also present in this notion. However, in the past few decades, wide usage of information technology transformed not only the usual, but also the financial services as well (KOVÁCS−TERTÁK 2016). For this, people need the so-called digital literacy, which notion rarely occurs in the scientific literature. To understand financial information, an individual also needs the knowledge of digital technologies, the development of which therefore should be - in my opinion - of great importance.

Financial literacy was divided into at least four subfields during the research of the past few decades. These are the following:

1. *Basic financial matters*;
2. *Taking out a loan*;
3. *Investments*;
4. *Resource protection:* insurance products.

There is an agreement in the scientific literature considering the subfields. There are researchers who consider fewer parts, because they concentrate on special groups of questions. To get a complex picture of financial literacy, it is reasonable to investigate a larger part of subfields. Thus the survey, compiled by "Econventio Kerekasztal" public benefit organisation and the Faculty of Economics and Business Administration of the University of Szeged,

investigating Hungarian secondary school students examines six different areas: bank services, savings and investments, loans, labour, general economic knowledge, insurance and pension.

Recently, many domestic and international organizations (e.g. OECD) have become interested in the investigation of financial literacy. The problem, that individuals lack the elementary knowledge to make suitable financial decisions in their everyday lives, occurred on both levels. Many surveys – mainly in the US and the United Kingdom - tried to measure and emphasize financial literacy. Thus, defining financial literacy came forward, taking into account also the process started by OECD. However, researchers put less effort in the development of the analytical methods. Usually, by aggregating the answers the create an index with a value between zero and the number of correct answers. On the other hand, they investigate the factors influencing financial literacy by two- and multivariate regression analysis. Italian researchers used the Rasch model to get a numerical approach of capabilities, attitudes and financial action. Since 2000 these methods are used also in PISA-surveys. This method considers the difficulty of the questions and the personal skills as well (BONGINI et al. 2012).

In 2012, a group of researchers, established by Econventio and the Faculty of Economics and Business Administration of the University of Szeged, created the so-called Econventio-index to describe the financial knowledge of Hungarian secondary school students. The aim of this index is to give a single value to represent the annual performance of the students. All six parameters of the model influence the value of the index by the same weight. Thus Econventio-index has a value between 0 and 100, higher values correspond to better average performances (KOVÁCS et al. 2015). Though there are many differences in the models, in general they measure the level of financial literacy by a standardized value. However, the majority of the surveys concentrate only on financial knowledge. The measurement of attitude occurs in fewer studies.

In the third chapter I present the target audiences, and some results considering these groups. Different age groups correspond to different financial knowledge. Expectations have to be connected to the appropriate age group. These audiences include business actors (CZAKÓ – SZANYI 2011, ORSZÁG et al. 2015, COATES et al. 2005), women (FONSECA et al. 2012, LUSARDI–MITCHELL 2008, MATHIVANAN–MOHANARANJANI 2013, LUSARDI–WALLACE 2013), people with low or average income (SERVON–KAESTNER 2008), and young people (BÉRES et al. 2013, DE BASSA SCHERESBERG 2013, CULL–WHITTON 2011). I present results of Hungarian and international research focusing on adults and young people, which reveal the necessity of financial training in secondary school education. Some researchers would start training in primary school, while others consider the role of colleges and universities. But not only young people, also almost all adults are in need of improving their financial skills. The financial

culture of young people depends on their family backgrounds. If their parents lack the sufficient skills to teach them financial awareness, the effectiveness of school education might be very low.

In the fourth chapter I discuss the fields of improvement of financial culture. National banks consider improving the financial skills of individuals as an important task in many countries, and merchant banks and NGOs also joined this activity. These developments concentrated on the improvement of financial knowledge and behaviour. Values and attitudes are harder to discover, however, they are also important factors of the investigation of financial culture.

The group of researchers, established by Econventio and the Faculty of Economics and Business Administration of the University of Szeged, has carried out sampling surveys among secondary school students since 2011. As a member of this group, I consider the results of these surveys in the fifth chapter. Nearly 200 secondary school joined this research (which is one-third of the total number of secondary schools in Hungary), and the Hungarian National Bank, the State Audit Office, the National Tax and Customs Administration and the Ministry of Human Capacities are partners in the research. Background research is covered by the University of Szeged.

3.2. Methodology

After the revision of scientific literature, I analyse the results of the tests, reveal the areas which cause difficulties, find the reasons and suggest some possible ways of improvement. In correspondence with international studies, I investigate the difficulties based on different dimensions, the results according to sex and qualification, the attitudes and also the characteristics of those who gave answers 'I don't know'. I take part in this research since 2014, my task in the present study is to find differences in the results.

The survey consists of questions of six dimensions, based on international results. These questions concentrate on the financial knowledge and the attitude of the participants. Usually, in the test there is an exercise connected to computations or financial offers, and four other problems testing knowledge. Besides, there is a question checking attitude in every topic. The test also contains the analysis of financial knowledge and computational skills. The questions are practice-oriented and investigate actual information. For each question we give multiple answers, one of which is correct. The numbers of questions in each dimension are usually equal. We offer an 'I don't know' answer to minimize the bias resulting from giving answer in random

(KOVÁCS et al. 2015). Since 2012, the survey is filled in electronically in a single turn every year in spring.

In 2012, the group of researchers created the so-called Econventio-index, which gives the ratio of correct answers in each dimension respectively as a single value between 0 and 1, and then represents the results in the interval between 0 and 100. Beside the Econventio-index, in 2013 also an attitude-index was introduced to measure the positive or negative approach of students between 0 and 100 (KOVÁCS et al. 2013).

The results of the test and the value of the Econventio-index are influenced by the difficulty of the questions of the test. I think it is important to investigate the difficulty of the questions, because the number of easy and difficult questions are not pre-determined. I left out those who did not finish filling the test. Then I arranged the answers in order based on the value of the Econventio-index, and created three categories: I put the lower 30 percent in the first category, then the middle 40 percent and then the upper 30 percent with the best results.

I introduced the measure of correctness by calculating the ratio of correct answers. The difficulty of a question is acceptable if the value of the correctness is between 30 and 70 percent. (OFFICE OF EDUCATION). If the value is less than 30 percent, then the question is too difficult, and if it is more than 70 percent, the question is too easy. Thus we can define the level of difficulty of the questions based on the measure of correctness. We can determine the value of the so-called discriminating index as the difference of the ratio of correct answers of the lower 30 percent and the upper 30 percent. (OFFICE OF EDUCATION). The value is acceptable if it is positive, i.e. the ratio of correct answers of the students with better performance is higher than the ratio of students with lower performance. The main purpose of this study is to determine which questions show the greatest differences, i.e. which questions give the greatest discriminating index. My further aim is to investigate the characteristics of the best 30 percent and the lower 30 percent.

In the 2012 survey I found 7 difficult and 2 easy questions. Students spent an average of 14 minutes on the survey. Men spent significantly more time on the survey than women, and got a 4 percentage higher result. The index of those who study in economic training performed slightly better than others. To examine the connection between financing higher education and the opinion on student loan, I compiled a contingency (correspondence) table. This connection between qualitative attributes is investigated by correspondence analysis, which transforms the data of a frequency table into a graph (HAJDU 2003). The weighted variance of the data (inertia) gives information on the deviation of each category around their centroids.

I compared the difficulty of the questions in the two categories. I calculated the Spearman's rank correlation coefficient between the rankings of the questions, and got a value of 0.803 (Sig < 0.01). This shows a strict positive connection between the difficulty of a question and the category (lower and upper 30 percent). Thus we can state that similar rankings could be determined in each group considering the difficulty of the questions, which means that the difficulty of a question is not affected by the performance of the individual answering it.

In the 2013 survey, based on the results of 11472 individuals answering it, I arranged the questions in order according to the measure of correctness. Only one question did not fulfil the criterion of positive discriminating index. The number of difficult questions remained the same, 7, as in the previous year, but only one question proved to be easy. The number of questions, where those students who study in economic training performed significantly better than others, rose from 16 to 19. The investigations with respect to the sex of the participant showed that women had more correct answers in 2013 than in 2012, however, in most cases men still had a higher ratio of correct answers. The time spent to fill out the survey was a minute less than a year before. Men spent a bit more time on the survey in 2013 as well, but the difference is not significant. Their results are slightly better. The index of students in economic education is significantly better than the index of students of other trainings. Based on the 2013 survey I compared the characteristics of the students with the best and the worst results. I experienced a 37 percentage difference in the Econventio-index (the value of the test function is -191.880, Sig<0.01). The participants typically come from secondary technical schools, but the ratio of students from secondary vocational schools is significantly higher in the lower 30 percent than in the upper 30 percent. While investigating the difficulty of the questions in the two groups I got a Spearman's rank correlation coefficient of 0.779 (Sig<0.01). This coefficient is slightly less than in 2012.

9605 students filled in the survey in 2014, of whom 9400 answered all questions. Arranging the results according to the measure of correctness, there is no question with negative discriminating index. 12 question proved to be difficult in 2014, and no question was easy. A significant change to previous years is that the ratio of correct answers is higher in the case of students attending economic education for nearly all questions. I compared the characteristics of the best and the worst students based on the survey of 2014. I found a 39 percentage difference in the Econventio-index (the value of the test function is -146.313, Sig<0.01). Comparing the order of the difficulty of the questions in the two categories the value of the Spearman's rank correlation coefficient is 0.676 (Sig < 0.01), which is less than in 2013.

12083 students filled in the survey in 2015, of whom 11767 answered all questions. By arranging the questions according to the measure of correctness, we can state that the value of the discriminating index is positive in every case. We found only two difficult questions based on the measure of correctness. The lowest value of the discriminating index in this year was 17.59 percent, which corresponds to the easiest question. Since this question did not influence the performance, we did not take it into account in the calculation of the Econventio-index. In the case of another easy question the measure of correctness was over 85 percent, therefore we excluded this question from the measurement of the performance, too. We found more easy questions in 2015, than in the previous years (7). We also asked the students if they ever filled in an Econventio-test before. One-quarter (26.1 %) took part in the surveys of previous years. These students reached a 6.5 percentage higher result (the value of the test function is -17.802, Sig < 0.01). I compared the characteristics of the best (upper 30 percent) and the worst (lower 30 percent) students based on the survey of 2015. I found a difference of 43 percentages in the Econventio-index (the value of the test function is -202.654, Sig < 0.01). Comparing the order of the difficulty of the questions in the two categories the value of the Spearman's rank correlation coefficient is 0.824 (Sig < 0.01), which is higher than in the previous years.

Since the time spent on filling in the survey influences the performance, it is important to analyse those students who did not want or could not answer the questions. During my investigations I often found questions where the answer 'I don't know' had a very high proportion. Therefore, in the data for each year I sorted out those students who finished earlier and those who gave the answer 'I don't know' at least once. In each year the majority gave the answer 'I don't know' only for one question. Hence I investigated the change of the Econventio-index also in the cases of these students, which in 2015, after reaching the bottom in 2014, approached the so far highest value of 2012. The highest ratio of missing answers was in 2013, but in 2015 half of the participating students never answered 'I don't know'. This means that the ratio of uncertainty is better than in the previous years.

4. The main results of the dissertation and propositions

In my study I investigated the financial literacy of Hungarian secondary school students between 2012 and 2015. Based on their results of the survey, I created three categories of the students: the lower 30 percent belongs to the first category, then came the middle 40 percent, and the upper 30 percent with the best results. I found that the value of the Econventio-index of

is significantly higher for the upper 30 percent than for the lower 30 percent in each year (the difference is nearly 40 percentages). While considering the questions, I found that the value of the discriminating index was not always positive: there were two negative values. Thus, based on my first hypothesis, I can state the following proposition:

Proposition P1: During the test of financial knowledge, students achieving the best overall performance do not perform better for all questions than the students with the worst results.

While analysing the results of each year, I compared the characteristics of the best and worst secondary school students. I found a 40 percentage difference in the value of Econventio-index in every year (Proposition P1). The students with the worst performance spent less on filling in the survey than those achieving the best results. The ratio of women is in general higher in the lower 30 percent (apart from 2014, where the ratio is almost the same in the two categories). The ratio of students attending economic education is higher in the category of the best participants in every year. The average age is one year greater in the upper 30 percent than in the lower. In both categories the participants usually attend secondary technical schools, while in the case of the lower 30 percent, the ratio of students attending secondary vocational schools is significantly higher than in the upper 30 percent. Students belonging to these categories mainly get their information on finances from their families, with mentions by far more often in the case of the worst students in 2012 and 2013. In 2014, instead of asking students how they get their information on finances, we asked which form of training to improve their financial skills is the most sympathetic for them. In the upper 30 percent (as in the entire sample) mostly they answered school lessons and practice-oriented trainings by experts. However, students with the worst results mainly answered textbooks and the help of a teacher. In 2015 students in both categories gain their information mainly from their families, but the ratio of mentions is higher among the student achieving the best results.

Thus, I verified Hypothesis H2: There is a significant difference between the characteristics of the best and the worst students. I can formulate the following proposition:

Proposition P2: There is a significant difference between the characteristics of the best and the worst students. Among the worst students the ratio of women is higher, the ratio of those attending economic education is less, they are younger, and the proportion of students attending secondary vocational schools is higher.

However, I found no difference between the two categories considering how they gain their information on finances.

The difference of the results is influence also by the amount of experience the students have. The lower ratio of students attending economic schools and the lower average age in the lower 30 percent verifies the following proposition:

Proposition P3: Students with lower financial awareness have lower performances in the tests.

Hungarian secondary school students - international surveys show the same results - have problems with calculating percentages, compound interests, understanding expression like 'at most', 'at least', comparing financial products. This situation requires our attention, because an OECD-survey in 2011 showed that the Hungarian adult population did not usually consider or compare different possibilities, therefore the skills to make financial calculations are still missing in younger generations. A survey of Pénzirántyű in 2015 showed some improvement considering comparisons (PÉNZIRÁNYTŰ). Our results, as well as international surveys, showed that the behaviour of a student towards financial matters is in significant connection with their financial culture, which means that not only the knowledge, but also the attitude has to be improved. Based on the results of a S&P survey carried out in 2015, I investigated Hungary's position among European countries considering financial literacy. Hungary was in second position after the Czech Republic among eastern central European countries, the ratio of financially educated individuals is close to the ratio of Austria. Using further indices could show more precise results, but it is good news that Hungary reached 19th position compared to the average result (33 %) of the 144 countries participating in the survey. According to international studies and empirical research, we can find differences considering the results with respect to the sex of the participants. Women have lower performances in calculation exercises, and the majority of those giving the answer 'I don't know' are also women. This means that women evaluate their own knowledge less than men. Comparing the results of boys and girls, I found that in 2012, 2013 and 2015 boys had higher Econventio-index than girls, while in 2014 there was no significant difference. However, men had a higher ratio in the sample of those who did not answer, which is different than the international experience. International surveys showed the same problems in the area of financial literacy as the results of the surveys carried out among Hungarian secondary school students, thus I can formulate the following proposition:

Proposition P4: International surveys and studies investigating Hungarian secondary school students showed very similar results: the problematic fields (calculating percentages, compound interests, comparison of financial products) were the same. Meanwhile, the international experience that women are less certain about their knowledge and men have higher financial literacy than women did not occur among Hungarian secondary school students.

5. The limits of the research, future work

Our results show that financial education is necessary in secondary schools. Some researchers would start training in primary school, while others consider the role of colleges and universities. But not only young people, also almost all adults are in need of improving their financial skills. The financial culture of young people depends on their family backgrounds. If their parents lack the sufficient skills to teach them financial awareness, the effectiveness of school education might be low.

The group of researchers, established by Econventio and the Faculty of Economics and Business Administration of the University of Szeged, has carried out sampling surveys among secondary school students since 2011. As a member of this group, I considered the results of these surveys in the fifth chapter. I compared the results of these surveys and made an attempt to create a complex picture of the financial literacy of Hungarian students. In previous research descriptive statistical methods and cross tables were used, I extended the methodology by advanced statistical analyses.

In my study I analysed the questions and the results of each survey. I determined which questions were easy and which were difficult. I divided the students into three categories: the worst performance (lower 30 percent), the middle 40 percent, and the best performances (upper 30 percent). By the analysis of the questions, I showed that students belonging to the upper 30 percent had better results in almost every case than students belonging to the lower 30 percent. I found two exceptions (in these cases the value of the discriminating index was negative): the first is the question about the highest value of the national debt with respect to the GDP in the 2012 survey, where better students were probably misled by the possible choice of Greece. The other was a calculation exercise considering savings in 2013.

I investigated the financial literacy of secondary school students based on the tests. Besides analysing the questions, I determined the characteristics of the best and worst students. The greatest lack of knowledge occurred in areas like loans, insurances, pension, areas where they

have little personal experience, maybe only the experience gained at home. It is important to investigate these questions, because from the results we get information about how the students understand financial processes and how well prepared they are for the future. The test showed that the results of those who had filled in an Econventio-survey in the previous years were significantly better, which verifies the work of the association.

During the analysis of the financial literacy of Hungarian secondary school students I wanted to detect the latent variables. Usually factor analysis is used to investigate unobservable variables, but I did not have attributes measured on ratio scales. The transformation of the current variables to individual, independent variables (with values 0 and 1) could be a topic of future work, and based on this transformation, factor analysis could be applied.

I examined the financial literacy of the students with respect to the school they attend. I considered the difference between those who attend economic schools and other students. In most cases students of economic education reach higher results, however, these students cannot identify their knowledge. Thus it is important for the students to be aware of financial knowledge. Financial education should put emphasis on the students' awareness of the basic concepts of financial literacy.

Many domestic and international surveys verified that problems occur during practical exercises. The aim of the Econventio-test is to reveal these problems. Most of the participants gain their information in their families and the parents are likely to have non-sufficient knowledge, which makes trainings at school very important. Students can be divided into categories based on demographic features, hence I recommend personal or grouped education. PISA-surveys imply demographic parameters already, thus surveys of financial literacy could also imply variables of the parental background.

In my study I mentioned the importance of improving the digital competences several times. Not only introducing the technologies, but also the training how to use digital information sources is necessary. The improvement of practical skills - based on the needs of the Z-generation - should take place in forms of digital games. Recently research showed some advantages of electronic games: better concentration, racing, and paying attention on one another. Thus gamification could be a useful tool to improve the financial literacy of students.

I hope my study contributes to the investigation of Hungarian financial literacy. I think it is important to extend the improvement of financial skills, for which the spread of internet offers several possibilities (but it also implicates several risks). Young people and students cannot utilize their knowledge in their everyday lives, but the investigation of financial literacy may offer them some help.

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